STATE OF DELAWARE
EXECUTIVE DEPARTMENT
OFFICE OF MANAGEMENT AND BUDGET
STATE PLANNING COORDINATION

August 22, 2006

Mr. Gary Cuppels
ECI, Inc.
P.O. Box 820
Rehoboth Beach, De 19971

RE: PLUS review – PLUS 2006-07-07; Dickinson Grove

Dear Mr. Cuppels

Thank you for meeting with State agency planners on July 26, 2006 to discuss the proposed plans for the Dickinson Grove project to be located on the north side of Roesville Road near intersection with Carpenters Bridge Road.

According to the information received, you are seeking subdivision plan approval for 217 residential units on 130.4 acres.

Please note that changes to the plan, other than those suggested in this letter, could result in additional comments from the State. Additionally, these comments reflect only issues that are the responsibility of the agencies represented at the meeting. The developers will also need to comply with any Federal, State and local regulations regarding this property. We also note that as Kent County is the governing authority over this land, the developers will need to comply with any and all regulations/restrictions set forth by the County.

Executive Summary

The following section includes some site specific highlights from the agency comments found in this letter. This summary is provided for your convenience and reference. The full text of this letter represents the official state response to this project. ***Our office***

notes that the applicants are responsible for reading and responding to this letter and all comments contained within it in their entirety.

State Strategies/Project Location

- This project is located in Investment Level 3 according to the Strategies for State Policies and Spending. This site is also located in the Kent County Growth Zone. Investment Level 3 reflects areas where growth is anticipated by local, county, and state plans in the longer term future, or areas that may have environmental or other constraints to development. State investments will support growth in these areas, but please be advised that the State may have other priorities in the near term future. We encourage you to design the site with respect for the environmental features which are present.

Street Design and Transportation

- Roesville Road is classified as a collector road. DelDOT's policy is to require dedication of sufficient land to provide a minimum right-of-way width of 40 feet from the centerline on collector roads. Therefore they will require right-of-way dedication to provide the additional feet from this project.

- The plan for the development should include a 10-foot wide shared use path in a 15-foot wide permanent easement across the frontage of the site.

- DelDOT does not recommend that the County require a traffic impact study for this development. However participation in road improvements should still be required of this developer.

- DelDOT will also require the developer to participate, with the developers of Roesville Estates and Old Coursey's Mill, in improving Roesville Road to meet DelDOT's standard typical sections for the length of the site frontage.

- The proposed site entrance was not shown on the plan that was provided, but its location was identified at the PLUS meeting. DelDOT understands from the PLUS application that the proposed entrance would be aligned with the Roesville Estates entrance but they now find that the Roesville Estates entrance is opposite an existing pond on the subject land. DelDOT's first choice would be to move the Roesville Estates entrance and still have the two entrances opposite each other. If that cannot be done, an offset entrance may be acceptable. A sight distance analysis will be required for the proposed entrance location and improvements as necessary to achieve adequate sight distance there will be required.

- Two subdivisions, Weatherstone Crossing (Tax Parcel SM-00-140.00-01-02.00 and 03.00) and Rayfield Point (Tax Parcel SM-00-140.00-01-029.00), are proposed immediately north of the subject development. Stub streets should be appropriately located along the north property line to provide street connections to them.

- The plan shows two cul-de-sac streets. It is recommended that the west one be changed to a loop and the other one be shortened as much as possible.
- One four-way intersection is proposed within the development. DelDOT recommends that the use of a roundabout be considered for traffic control purposes there.

- One block west of the four-way intersection just mentioned, there is a Y-shaped intersection. It should be realigned into a T.

Natural and Cultural Resources

- This proposed development has a number of development constraints due to wetland issues. This development should not be approved without significant changes.

- Sixteen development applications have been proposed along the Murderkill and its tributaries since April 2004. The approval of these developments will add an additional 5,364 homes along the Murderkill River. The presence of these residential units will bring negative cumulative impacts to the River and adjoining water bodies. DNREC strongly encourages the developer to employ vegetated buffers along the edge of the wetland complex and asks the developer to not remove trees for lot lines or infrastructure. SWM ponds should be removed from forested areas and the developer should strongly consider utilizing the forested area for innovative stormwater best management practices that will minimize the need for ponds.

- Stream crossings, including changes to the existing road crossing, will require State of Delaware Subaqueous Lands Permits. The adjacent property (Rayfield Point) could physically provide an entrance and not require a stream crossing with its associated economic and environmental costs. It is recommended that alternatives to the proposed street pattern be explored to reduce cumulative impacts to these riparian resources.

- The Drainage Program encourages the elevation of rear yards to direct water towards the streets where storm drains are accessible for maintenance. However, the Drainage Program recognizes the need for catch basins in rear yards in certain cases. Therefore, catch basins placed in rear yards will need to be clear of obstructions and be accessible for maintenance.

- The Drainage Program requests a 15-foot side yard setback on all lots with a drainage easement on the side. A 15-foot side yard setback will allow room for equipment to utilize the entire drainage easement and maneuver free of obstructions if the drainage conveyance requires periodic maintenance or future re-construction.

- The Drainage Program requests a 10-foot drainage easement around all catch basins located on private property to ensure adequate room for maintenance.

- DNREC has not surveyed this property, therefore, it is unknown if there are state-rare or federally listed plants, animals or natural communities at this project site that would be affected by project activities**. In order to provide more informed comments and to make reasonable recommendations, the program botanist and zoologist request the opportunity to survey the forested and wetland resources which could potentially be impacted by the project**

Specific Site Recommendations:

1. The applicant should consider removing lots and infrastructure that would result in tree clearing. There is a fairly large section of woods in the northern portion of tax parcel SM-00-140.00-01-34.00 that doesn't appear to be incorporated into the site plan. DNREC recommends that this area not be developed now or in the future, but rather be left intact, especially as it is part of a larger forest block.

2. Larger, continuous areas of forest are more beneficial to wildlife than small, fragmented areas. Forest fragmentation separates wildlife populations, increases road mortality, and increases "edge effects" that leave many forest dwelling species vulnerable to predation and allows the infiltration of invasive species.

3. Stormwater management ponds should be located in the non-forested portion of the project area or an alternate method of stormwater management utilized. Trees function in flood abatement and erosion control and should not be removed to create ponds.

4. Trees that are cleared should not be removed from April 1st to July 31st to reduce impacts to birds and other species of wildlife that utilize forests for breeding. This recommendation would only protect those species during the breeding season because once trees are cleared the result is an overall loss of habitat.

5. According to state wetland maps, a large portion of the woods within the project area contain wetlands. Forested wetlands can support an array of plant and animal species which inhabit the wetlands as well as perimeter upland buffers. It is recommended that the proposed 25-foot wetland buffers be increased to at least 100 feet in width. Lot lines and infrastructure should not be located within this buffer zone.

6. This buffer will also protect tidal scrub-shrub wetlands and a State Natural Area that are just downstream from the project. Specific hydrologic, edaphic, and typographical conditions must be in place in order for tidal shrub wetlands to develop and persist. Sedimentary run-off from upstream construction would be detrimental to this wetland type and could cause an unfavorable shift in species composition and community structure.

The following are a complete list of comments received by State agencies:

Office of State Planning Coordination – Contact: David Edgell 739-3090

This project is located in Investment Level 3 according to the Strategies for State Policies and Spending. This site is also located in the Kent County Growth Zone. Investment Level 3 reflects areas where growth is anticipated by local, county, and state plans in the longer term future, or areas that may have environmental or other constraints to development. State investments will support growth in these areas, but please be advised that the State may have other priorities in the near term future. We encourage you to design the site with respect for the environmental features which are present.

Division of Historical and Cultural Affairs – Contact: Alice Guerrant 739-5685

Nothing is known within this parcel. Beers Atlas of 1868 shows the A. Young House on Roesville Rd. and the D. Green House just across the stream to the north, in the general location of the existing buildings. The developer noted that the existing house is modern. There are areas of high and medium potential for prehistoric archaeological sites within the parcel.

Small, rural, family cemeteries often are found in relation to historic farm complexes, such as the Green House, usually a good distance behind or to the side of the house. The

developer should be aware of Delaware's Unmarked Human Remains Act of 1987, which governs the discovery and disposition of such remains. The unexpected discovery of unmarked human remains during construction can result in significant delays while the process is carried out. The developer did note that he had hired an archaeological consultant to assess the property. We request a copy of the consultant's report. The Division of Historical and Cultural Affairs will be happy to discuss these issues with the developer; the contact person for this program is Faye Stocum, 302-736-7400.

Because of the two stream crossings, this project will almost certainly need an Army Corps of Engineers permit, at which point the developer will be required to consult with this office under Section 106 of the National Historic Preservation Act of 1966, as amended. Depending on the Corps' determination of the area of effect, it is anticipated that this project will require actual archaeological testing to look for and evaluate any sites that may be in the area. The contact person in this office for Corps project is Craig Lukezic, and he can be reached at the same number.

If any of the outbuildings are older than the existing house, the DHCA would appreciate the opportunity to document them prior to any demolition activities. If a Corps permit is not required, they would appreciate the opportunity to examine the area for archaeological sites and learn something about their location, nature, and extent prior to any construction activities.

Department of Transportation – Contact: Bill Brockenbrough 760-2109

1) Roesville Road is classified as a collector road. DelDOT's policy is to require dedication of sufficient land to provide a minimum right-of-way width of 40 feet from the centerline on collector roads. Therefore they will require right-of-way dedication to provide the additional feet from this project.

2) The plan for the development should include a 10-foot wide shared use path in a 15-foot wide permanent easement across the frontage of the site.

3) DelDOT does not recommend that the County require a traffic impact study for this development. However participation in road improvements should still be required of this developer. Traffic Impact Studies have been done for other developments in this area, notably Henley Estates (f.k.a. Tuscany Estates) and Twin Farms (f.k.a. Johnnycake Landing). For this reason, DelDOT will not require a TIS for this development, but they will require that the developer participate in funding an equitable share of the road improvements identified as being necessary in those studies. DelDOT anticipates writing to Kent County in this regard in the near future.

4) DelDOT will also require the developer to participate, with the developers of Roesville Estates and Old Coursey's Mill, in improving Roesville Road to meet DelDOT's standard typical sections for the length of the site frontage. These improvements should include two eleven-foot travel lanes and two five-foot shoulders and overlaying or reconstructing the existing through travel lanes. DelDOT has analyzed the through travel lanes' pavement section and has recommended an overlay thickness or reconstruction alternative. The developer's site engineer may contact Mr. Brad Herb, our project manager for Kent County in this regard. He may be reached at (302) 266-9600.

   It may be noted that eleven-foot travel lanes and five-foot shoulders are DelDOT standards for a local road rather than a collector road. Roesville Road was reclassified from a local road to a collector road only recently, and after the developers of Roesville Estates and Old Coursey's Mill were required to improve the road to local road standards. For this reason, they will not require the subject development to meet our collector road standard.

5) The proposed site entrance was not shown on the plan that was provided, but its location was identified at the PLUS meeting. DelDOT understands from the PLUS application that the proposed entrance would be aligned with the Roesville Estates entrance but they now find that the Roesville Estates entrance is opposite an existing pond on the subject land. DelDOT's first choice would be to move the Roesville Estates entrance and still have the two entrances opposite each other. If that cannot be done, an offset entrance may be acceptable. A sight distance analysis will be required for the proposed entrance location and improvements as necessary to achieve adequate sight distance there will be required.

6) Two subdivisions, Weatherstone Crossing (Tax Parcel SM-00-140.00-01-02.00 and 03.00) and Rayfield Point (Tax Parcel SM-00-140.00-01-029.00), are proposed immediately north of the subject development. Stub streets should be appropriately located along the north property line to provide street connections to them. In the case of Weatherstone Crossing, the stub street would connect to Bakerton Court, which is near the center of the two developments' common property line. In the case of Rayfield Point, DelDOT has seen only concept plans, so there may be significant flexibility on the part of that developer. Finally on this subject, a stub street should be provided to the Baker property (Tax Parcel SM-00-140.00-01-035.00) immediately to the west of the subject land to provide for a future connection to that land if it is ever subdivided.

7) The plan shows two cul-de-sac streets. It is recommended that the west one be changed to a loop and the other one be shortened as much as possible. DelDOT understands that cul-de-sacs are sometimes necessary due to site constraints but they impede the circulation of traffic, and they lengthen pedestrian trips, which encourages driving over walking.

8) One four-way intersection is proposed within the development. DelDOT Recommends that the use of a roundabout be considered for traffic control purposes there.

9) One block west of the four-way intersection just mentioned, there is a Y-shaped intersection. It should be realigned into a T.

10) The developer's site engineer should contact Mr. Brad Herb, DelDOT project manager for Kent County, regarding specific requirements for streets and access. He may be reached at (302) 266-9600.

The Department of Natural Resources and Environmental Control – Contact: Kevin Coyle 739-9071

General Comment

This proposed development has a number of development constraints due to wetland issues. This development should not be approved without significant changes.

Sixteen development applications have been proposed along the Murderkill and its tributaries since April 2004:

PLUS #	Name	Res. Units	Water Body
20040404	Twin Farms	310	Ash Gut
20040407	Spence Property	211	Murderkill River
20040608	Chapel Farms	535	Spring Creek
20040905	Heritage	205	Double Run
20041105	Rock Creek	143	Murderkill River
20041112	Roseville Estates	472	Murderkill River
20050107	Tuscany Estates	814	Ash Gut
20050809	Auburn Hills	293	Double Run
20050904	Cattail Creek	275	Spring Creek
20051108	Woods Edge	115	Ash Gut
20051201	Autumn Glen	327	Murderkill River

20060102	Blessing Property	458	Hudson Branch
20060302	Rayfield Point	363	Ash Gut
20060410	Markowitz Prop.	241	Hudson Branch
20060505	Sloan Property	385	Murderkill River
20060707	Dickinson Grove	217	Ash Gut

The approval of these developments will add an additional 5,364 homes along the Murderkill River. The presence of these residential units will bring negative cumulative impacts to the River and adjoining water bodies. DNREC strongly encourages the developer to employ vegetated buffers along the edge of the wetland complex and asks the developer to not remove trees for lot lines or infrastructure. SWM ponds should be removed from forested areas and the developer should strongly consider utilizing the forested area for innovative stormwater best management practices that will minimize the need for ponds.

Site Plan Recommendations

There are numerous proposed or in-progress developments in this area, and cumulative impacts regarding forest loss and wetland impacts are a real concern.

1. The applicant should consider removing lots and infrastructure that would result in tree clearing. There is a fairly large section of woods in the northern portion of tax parcel SM-00-140.00-01-34.00 that doesn't appear to be incorporated into the site plan. We recommend that this area not be developed now or in the future, but rather be left intact, especially as it is part of a larger forest block.

2. Larger, continuous areas of forest are more beneficial to wildlife than small, fragmented areas. Forest fragmentation separates wildlife populations, increases road mortality, and increases "edge effects" that leave many forest dwelling species vulnerable to predation and allows the infiltration of invasive species.

3. Stormwater management ponds should be located in the non-forested portion of the project area or an alternate method of stormwater management utilized. Trees function in flood abatement and erosion control and should not be removed to create ponds.

4. Trees that are cleared should not be removed from April 1st to July 31st to reduce impacts to birds and other species of wildlife that utilize forests for breeding. This recommendation would only protect those species during the breeding season because once trees are cleared the result is an overall loss of habitat.

5. According to state wetland maps, a large portion of the woods within the project area contain wetlands. Forested wetlands can support an array of plant and animal species which inhabit the wetlands as well as perimeter upland buffers. We recommend that the proposed 25-foot wetland buffers be increased to at least 100 feet in width. Lot lines and infrastructure should not be located within this buffer zone.

6. This buffer will also protect tidal scrub-shrub wetlands and a State Natural Area that are just downstream from the project. Specific hydrologic, edaphic, and typographical conditions must be in place in order for tidal shrub wetlands to develop and persist. Sedimentary run-off from upstream construction would be detrimental to this wetland type and could cause an unfavorable shift in species composition and community structure.

Soils

Based on the Kent County soil survey Sassafras, Rumford, Woodstown, Elkton, Fallsington, and Johnston were mapped in the immediate vicinity of the proposed construction. Sassafras and Rumford are well-drained upland soils that, generally, have few limitations for development. Woodstown is a moderately well-drained soil of low-lying upland that has moderate limitations for development. Elkton and Fallsington are poorly-drained wetland associated (hydric) soils have severe limitations for development. Johnston is a very poorly-drained wetland associated (hydric) floodplain soil that has the highest severity level for development.

Wetlands

Statewide Wetland Mapping Project (SWMP) maps indicate the presence of palustrine wetlands on this parcel. Nontidal palustrine forested riparian wetlands bound the entire southern boundary, thence northward bisecting the entire central portion of the parcel(s). Nontidal palustrine emergent and palustrine farmed mapping units were also mapped throughout the parcel(s). Based on the information provided by SWMP mapping, it is not likely that the wetlands on this parcel are tidally-influenced as the applicant contends.

These wetlands provide water quality benefits, attenuate flooding and provide important habitat for plants and wildlife. Vegetated buffers of no less than 100 feet should be employed from the edge of the wetland complex. The developer should note that both DNREC and Army Corps of Engineers discourage allowing lot lines to contain wetlands to minimize potential cumulative impacts resulting from unauthorized and/or illegal activities and disturbances that can be caused by homeowners.

This parcel(s) contains SWMP mapped headwater riparian wetlands (associated with an unnamed or name unknown stream tributary). Headwater riparian wetlands are important for the protection of water quality and the maintenance/integrity of the ecological functions throughout the length of the stream, including the floodplain system and/or water bodies further downstream. Since such streams are a major avenue for nutrient-laden stormwater and sediment runoff, their protection deserves the highest priority. In recognition of this concern, the Watershed Assessment Section strongly recommends the applicant consider preserving the existing riparian buffer in its entirety. Otherwise, a 100-foot minimum upland buffer from all water bodies (including all ditches) and wetlands is strongly recommended. Studies have shown that an upland buffer width of at least 100-foot is the minimum buffer width necessary to mitigate impacts from development.

Wetland Permitting Information

PLUS application materials indicate that wetlands have been delineated (presumably a field delineation). This delineation should be verified by the Army Corps of Engineers through the Jurisdictional Determination process. Please note that impacts to palustrine wetlands are regulated by the Army Corps of Engineers through Section 404 of the Clean Water Act. In situations where the applicant believes that the delineated wetlands on their parcel are nonjurisdictional isolated wetlands, the Corps must be contacted to make the final jurisdictional assessment. They can be reached by phone at 736-9763.

In addition, individual 404 permits and certain Nationwide Permits from the Army Corps of Engineers also require 401 Water Quality Certification from the DNREC Wetland and Subaqueous Land Section and Coastal Zone Federal Consistency Certification from the DNREC Division of Soil and Water Conservation, Delaware Coastal Programs Section.

Each of these certifications represents a separate permitting process.

Stream crossings, including changes to the existing road crossing, will require State of Delaware Subaqueous Lands Permits. The adjacent property (Rayfield Point) could physically provide an entrance and not require a stream crossing with its associated economic and environmental costs. It is recommended that alternatives to the proposed street pattern be explored to reduce cumulative impacts to these riparian resources.

To find out more about permitting requirements, the applicant is encouraged to attend a Joint Permit Process Meeting. These meetings are held monthly and are attended by federal and state resource agencies responsible for wetland permitting. Contact Denise Rawding at (302) 739-9943 to schedule a meeting.

Impervious Cover

Based on a review of the PLUS application, post-development surface imperviousness is estimated to be about 18 percent. However, given the scope and density of this project, said estimate may be an underestimate. The applicant should recognize that all forms of constructed surface imperviousness (i.e., rooftops, sidewalks and roads) should be accounted for when calculating surface imperviousness; otherwise, an inaccurate assessment of this project's environmental impacts is inevitable. It is strongly advised that the projected surface imperviousness be recalculated with all forms constructed surface imperviousness included in the calculation.

Studies link increases in impervious cover to decreases in water and habitat quality. Studies have also firmly established that irreversible declines in water and habitat quality begin once aggregate watershed surface imperviousness exceeds 10 percent. Based on the analyses of 2002 aerial photography by the University of Delaware, the Murderkill watershed had about 8.1 percent impervious cover. Although this data is about 4 years old and likely an underestimate, it underscores the importance of a proactive strategy to mitigate for predictable and likely cumulative environmental impacts. Since the amount of imperviousness generated by this project will be much higher than the desirable watershed threshold of 10 percent, the applicant is strongly advised to pursue best management practices (BMPs) that mitigate or reduce some of the most likely adverse impacts. Reducing the amount of surface imperviousness through the use of pervious paving materials ("pervious pavers") in lieu of asphalt or concrete in conjunction with an increase in forest cover preservation or additional tree plantings are examples of practical BMPs that could easily be implemented to reduce surface imperviousness.

TMDLs

Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Murderkill watershed. A TMDL is the maximum level of pollution allowed for a given pollutant below which a "water quality limited water body" can assimilate and still meet water quality standards to the extent necessary to support use goals such as, swimming, fishing, drinking water and shell fish harvesting. Although TMDLs are required by federal law, states are charged with developing and implementing standards to support these desired use goals. In the Murderkill watershed, a post-development TMDL reduction level of 50 and 30 percent will be required for nitrogen and phosphorus, respectively.

TMDL Compliance through the Pollution Control Strategy (PCS)

As stated above Total Maximum Daily loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Murderkill Watershed. The TMDL calls for a 50% reduction for nitrogen and 30% for phosphorus from baseline conditions. The Department developed an assessment tool to evaluate how your proposed development may reduce nutrients to meet the TMDL requirements. Additional reductions may be possible through the implementation of Best Management Practices such as wider vegetated buffers along watercourses, increasing passive, wooded open space, using enhanced nutrient removal wastewater technologies, and the use of stormwater management treatment trains. Contact Lyle Jones at 302-739-9939 for more information on the assessment tool.

Water Supply

The project information sheets state that Tidewater Utilities will be used to provide water for the proposed project. Our records indicate that the project located on tax parcel 34.00 is located within the public water service area granted to Artesian Water Company under Certificate of Public Convenience and Necessity number 04-CPCN-17, yet on the other part of the project (tax parcel 33.01) public water service is not available. It is recommended that the developer contact Artesian Water Company to determine the availability of public water. Any questions concerning CPCNs should be directed to the Public Service Commission at 302-739-4247. The Division of Water Resources will consider applications for the construction of on-site wells provided the wells can be constructed and located in compliance with all requirements of the Regulations Governing the Construction and Use of Wells. A well construction permit must be obtained prior to constructing any well(s).

Should dewatering points be needed during any phase of construction, a dewatering well construction permit must be obtained from the Water Supply Section prior to construction of the well points. In addition, a water allocation permit will be needed if the pumping rate will exceed 50,000 gallons per day at any time during operation.

All well permit applications must be prepared and signed by licensed water well contractors, and only licensed well drillers may construct the wells. Please factor in the necessary time for processing the well permit applications into the construction schedule. Dewatering well permit applications typically take approximately four weeks to process, which allows the necessary time for technical review and advertising.

Potential Contamination Sources exist in the area and any well permit applications will undergo a detailed review that may increase turnaround time and may require site

specific conditions/recommendations. In this case, the Kent County Torbert Farm is in a Groundwater Management Zone within 1000 feet of tax map number SM 00-140.00-01-34.00.

Should you have any questions concerning these comments, please contact Rick Rios at 302-739-9944.

Sediment and Erosion Control/Stormwater Management

Requirements:

1. Land disturbing activities in excess of 5,000 square feet are regulated under the Delaware Sediment and Stormwater Regulations. A detailed sediment and stormwater management plan must be reviewed and approved by the Kent Conservation District for this project prior to any land disturbing activity (i.e. clearing, grubbing, filling, grading, etc.) taking place.

2. The review fee and a completed Application for a Detailed Plan are due at the time of plan submittal to the Kent Conservation District. Construction inspection fees based on developed area and stormwater facility maintenance inspection fees based on the number of stormwater facilities are due prior to the start of construction. Please refer to the fee schedule for those amounts.

3. The following notes must appear on the record plan:

    - The Kent Conservation District reserves the right to enter private property for purposes of periodic site inspection.
    - The Kent Conservation District reserves the right to add, modify, of delete any erosion or sediment control measure, as it deems necessary.
    - A clear statement of defined maintenance responsibility for stormwater management facilities must be provided on the Record Plan.

4. Ease of maintenance must be considered as a site design component and a maintenance set aside area for disposal of sediments removed from the basins during the course of regular maintenance must be shown on the Record Plan for the subdivision.

5. All drainage ways and storm drains should be contained within drainage easements and clearly shown on the plan to be recorded by the City of Dover.

6. A soils investigation supporting the stormwater management facility design is required to determine impacts of the seasonal high groundwater level and soils for any basin design.

Comments:

1. From the concept plan it is unclear what is intended for stormwater management. The preferred methods of stormwater management are those practices that maximize the use of the natural features of a site, promote recharge and minimize the reliance on structural components. The designer is encouraged to consider the conservation design approach and limit the amount of tree clearing required for the development of the site including the stormwater management facilities.

2. Portions of the site may be eligible for quantity waivers, because of the close proximity to tidal water bodies.

3. Proper drainage of developed lots and active open space must be considered in the development of the grading plan for this subdivision.

4. The Kent Conservation District recommends that no residential lot be recorded within a subdivision that contains wetlands.

5. Access to the proposed stormwater facility must be provided for periodic maintenance. This access should be at least 12 feet wide to leading to the facility and around the facility's perimeter.

6. It is recommended that the stormwater management areas be incorporated into the overall landscape plan to enhance water quality and to make the stormwater facility an attractive community amenity.

7. A letter of no objection to recordation will be provided once the detailed Sediment and Stormwater Management plan has been approved.

8. Based on the site characteristics, a pre-application meeting is suggested to discuss stormwater management and drainage for this site.

Drainage

The Drainage Program does not have a clear understanding how stormwater is to be conveyed to the stormwater management areas. The Drainage Program requests that the routing of major stormwater pipes through yards be prohibited.

The Drainage Program encourages the elevation of rear yards to direct water towards the streets where storm drains are accessible for maintenance. However, the Drainage Program recognizes the need for catch basins in rear yards in certain cases. Therefore, catch basins placed in rear yards will need to be clear of obstructions and be accessible for maintenance. Decks, sheds, fences, kennels, and other structures placed along the storm drains, or within 10 feet of the catch basins, can hinder drainage patterns as well as future maintenance to the storm drains or catch basins. Deed restrictions, along with drainage easements recorded on deeds, should ensure adequate future maintenance access.

The Drainage Program requests a 15-foot side yard setback on all lots with a drainage easement on the side. A 15-foot side yard setback will allow room for equipment to utilize the entire drainage easement and maneuver free of obstructions if the drainage conveyance requires periodic maintenance or future re-construction.

The Drainage Program requests a 10-foot drainage easement around all catch basins located on private property to ensure adequate room for maintenance. The Drainage Program recommends restrictions on fences, sheds, and other structures within the easement to prevent obstructions from being placed within 10 feet of the catch basin.

Record all drainage easements on deeds and place restrictions on obstructions within the easements to ensure access for periodic maintenance or future re-construction.

The Drainage Program requests that the engineer take precautions to ensure the project does not hinder any off site drainage upstream of the project or create any off site drainage problems downstream by the release of on site storm water. The Drainage Program requests that the engineer check existing downstream ditches and pipes for function and blockages prior to the construction. Notify downstream landowners of the change in volume of water released on them.

This project is within the Murderkill River Watershed, a designated critical area, with a promulgated Total Maximum Daily Load (TMDL). Existing riparian buffers should be preserved to aid in the reduction of nutrients, sediment, and other pollutants. For the further enhancement of water quality, the Drainage Program encourages additional water quality best management practices on this project.

Open Space

To maximize the existing buffering capacity and wildlife habitat on site, it is recommended that lot lines and other infrastructure (such as storm water management ponds) be pulled out of the forest and that areas of community open space be designated

along the forested/riparian areas. Doing so will accomplish two things: it will preserve and expand the existing riparian buffers on site and its value for birds and wildlife and it will create recreational opportunities for residents by allowing them access to and views of the forest and stream.

In areas set aside for passive open space, the developer is encouraged to consider establishment of additional forested areas or meadow-type grasses. Once established, these ecosystems provide increased water infiltration into groundwater, decreased run-off into surface water, air quality improvements, and require much less maintenance than traditional turf grass, an important consideration if a homeowners association will take over responsibility for maintenance of community open spaces.

Open space containing forest and/or wetlands should be placed into a permanent conservation easement or other permanent protection mechanism. Conservation areas should also be demarked to avoid infringement by homeowners.

Site Visit Request

DNREC has not surveyed this property, therefore, it is unknown if there are state-rare or federally listed plants, animals or natural communities at this project site that would be affected by project activities.

In order to provide more informed comments and to make reasonable recommendations, our program botanist and zoologist request the opportunity to survey the forested and wetland resources which could potentially be impacted by the project. This would also allow the applicant the opportunity to reduce potential impacts to rare species and to ensure that the project is environmentally sensitive. Please contact Bill McAvoy, Kitt Heckscher, or Robert Coxe at (302) 653-2880 to set up a site visit.

Nuisance Waterfowl

The applicant indicated that nuisance geese have been considered, but it is unclear how they plan to address this potential issue. Therefore, we offer the following recommendation: Rather than manicured lawn areas, we recommend a buffer zone around the ponds comprised of tall native grasses, wildflowers, shrubs, and trees which will serve to deter geese from utilizing the ponds. Geese do not feel safe from predators and other disturbance when they can not see the surrounding area. These plantings should be completed as soon as possible as it is easier to deter geese than remove them once they become plentiful. The Division of Fish and Wildlife does not provide goose control services, and if problems arise, residents or the home-owners association will have to accept the burden of dealing with these species (e.g., permit applications, costs, securing

services of certified wildlife professionals). Solutions can be costly and labor intensive; however, with proper landscaping, monitoring, and other techniques, geese problems can be minimized.

Solid Waste

Each Delaware household generates approximately 3,600 pounds of solid waste per year. On average, each new house constructed generates an additional 10,000 pounds of construction waste. Due to Delaware's present rate of growth and the impact that growth will have on the state's existing landfill capacity, the applicant is requested to be aware of the impact this project will have on the State's limited landfill resources and, to the extent possible, take steps to minimize the amount of construction waste associated with this development.

Underground Storage Tanks

There are no LUST site(s) located near the proposed project. However, should any underground storage tank or petroleum contaminated soil be discovered during construction, the Tank Management Branch must be notified as soon as possible. It is not anticipated that any construction specifications would need to be changed due to petroleum contamination. However, should any unanticipated contamination be encountered and PVC pipe is being utilized, it will need to be changed to ductile steel with nitrile rubber gaskets in the contaminated areas.

Air Quality

Once complete, vehicle emissions associated with this project are estimated to be 16.7 tons (33,307.2 pounds) per year of VOC (volatile organic compounds), 13.8 tons (27,576.1 pounds) per year of NOx (nitrogen oxides), 10.2 tons (20,346.2 pounds) per year of SO2 (sulfur dioxide), 0.9 ton (1,811.2 pounds) per year of fine particulates and 1,393.1 tons (2,786,107.8 pounds) per year of CO2 (carbon dioxide).

Emissions from area sources associated with this project are estimated to be 6.7 tons (13,434.3 pounds) per year of VOC (volatile organic compounds), 0.7 ton (1,478.2 pounds) per year of NOx (nitrogen oxides), 0.6 ton (1,226.7 pounds) per year of SO2 (sulfur dioxide), 0.8 ton (1,583.0 pounds) per year of fine particulates and 27.2 tons (54,459.7 pounds) per year of CO2 (carbon dioxide).

Emissions from electrical power generation associated with this project are estimated to be 2.7 tons (5,324.4 pounds) per year of NOx (nitrogen oxides), 9.3 tons (18,519.6

pounds) per year of SO2 (sulfur dioxide) and 1,365.8 tons (2,731,648.1 pounds) per year of CO2 (carbon dioxide).

	VOC	NOx	SO_2	$PM_{2.5}$	CO_2
Mobile	16.7	13.8	10.2	0.9	1393.1
Residential	6.7	0.7	0.6	0.8	27.2
Electrical Power		2.7	9.3		1365.8
TOTAL	23.4	17.2	20.1	1.7	2786.1

For this project the electrical usage via electric power plant generation alone totaled to produce an additional 2.7 tons of nitrogen oxides per year and 9.3 tons of sulfur dioxide per year.

A significant method to mitigate this impact would be to require the builder to construct Energy Star qualified homes. Every percentage of increased energy efficiency translates into a percent reduction in pollution. Quoting from their webpage, http://www.energystar.gov/:

"ENERGY STAR qualified homes are independently verified to be at least 30% more energy efficient than homes built to the 1993 national Model Energy Code or 15% more efficient than state energy code, whichever is more rigorous. These savings are based on heating, cooling, and hot water energy use and are typically achieved through a combination of:

building envelope upgrades,
high performance windows,
controlled air infiltration,
upgraded heating and air conditioning systems,
tight duct systems and
upgraded water-heating equipment."

The Energy office in DNREC is in the process of training builders in making their structures more energy efficient. The Energy Star Program is excellent way to save on energy costs and reduce air pollution. They highly recommend this project development and other residential proposals increase the energy efficiency of their homes.

They also recommend that the home builders offer geothermal and photo voltaic energy options. Applicable vehicles should use retrofitted diesel engines during construction.

The development should provide tie-ins to the nearest bike paths, links to mass transit, and fund a lawnmower exchange program for their new occupants.

State Fire Marshal's Office – Contact: John Rossiter 302-739-4394

These comments are intended for informational use only and do not constitute any type of approval from the Delaware State Fire Marshal's Office. At the time of formal submittal, the applicant shall provide; completed application, fee, and three sets of plans depicting the following in accordance with the Delaware State Fire Prevention Regulation (DSFPR):

a. **Fire Protection Water Requirements**:
- Where a water distribution system is proposed for single-family dwellings it shall be capable of delivering at least 500 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 1000 feet spacing on centers are required.
- The infrastructure for fire protection water shall be provided, including the size of water mains.

b. **Accessibility:**
- All premises, which the fire department may be called upon to protect in case of fire, and which are not readily accessible from public roads, shall be provided with suitable gates and access roads, and fire lanes so that all buildings on the premises are accessible to fire apparatus. This means that the access road to the subdivision from Roesville Road must be constructed so fire department apparatus may negotiate it.
- Fire department access shall be provided in such a manner so that fire apparatus will be able to locate within 100 ft. of the front door.
- Any dead end road more than 300 feet in length shall be provided with a turn-around or cul-de-sac arranged such that fire apparatus will be able to turn around by making not more than one backing maneuver. The minimum paved radius of the cul-de-sac shall be 38 feet. The dimensions of the cul-de-sac or turn-around shall be shown on the final plans. Also, please be advised that parking is prohibited in the cul-de-sac or turn around.
- The use of speed bumps or other methods of traffic speed reduction must be in accordance with Department of Transportation requirements.
- The local Fire Chief, prior to any submission to our Agency, shall approve in writing the use of gates that limit fire department access into and out of the development or property.

c. **Gas Piping and System Information:**
- Provide type of fuel proposed, and show locations of bulk containers on plan.

d. **Required Notes**:
- Provide a note on the final plans submitted for review to read " All fire lanes, fire hydrants, and fire department connections shall be marked in accordance with the Delaware State Fire Prevention Regulations"
- Name of Water Supplier
- Proposed Use
- National Fire Protection Association (NFPA) Construction Type
- Maximum Height of Buildings (including number of stories)
- Provide Road Names, even for County Roads

Preliminary meetings with fire protection specialists are encouraged prior to formal submittal. Please call for appointment. Applications and brochures can be downloaded from our website: www.delawarestatefiremarshal.com, technical services link, plan review, applications or brochures.

Department of Agriculture - Contact: Milton Melendez 698-4500

The Delaware Department of Agriculture has no objections to the proposed development. The *Strategies for State Policies and Spending* encourages responsible development in areas within Investment Level 3.

The southwest corner of this site has been designated as having "excellent" ground-water recharge potential, while the remaining portion of the site has been designated as having good recharge. DNREC has mapped all ground-water recharge-potential recharge areas for the state. An "excellent" rating designates an area as having important groundwater recharge qualities.

Senate Bill 119, enacted by the 141st General Assembly in June of 2001, requires the counties and municipalities with over 2,000 people to adopt as part of the update and implementation of their 2007 comprehensive land use plans, areas delineating excellent ground-water recharge potential areas. Furthermore, the counties and municipalities are required to adopt regulations by December 31, 2007 governing land uses within those areas to preserve ground-water quality and quantity.

Maintaining pervious cover in excellent and good recharge areas is crucial for the overall environmental health of our state and extremely important to efforts which ensure a safe drinking water supply for future generations. Retention of pervious cover to ensure an adequate future water supply is also important for the future viability of agriculture in the

First State. The loss of every acre of land designated as "excellent" and "good" recharge areas adversely impacts the future prospects for agriculture in Delaware. The developer should make every effort to protect and maintain valuable ground-water recharge potential areas.

Right Tree for the Right Place

The Delaware Department of Agriculture Forest Service encourages the developer to use the "Right Tree for the Right Place" for any design considerations. This concept allows for the proper placement of trees to increase property values in excess of 25% of appraised value and will reduce heating and cooling costs on average by 20 to 35 dollars per month. In addition, a landscape design that encompasses this approach will avoid future maintenance cost to the property owner and ensure a lasting forest resource.
Native Landscapes

The Delaware Department of Agriculture and the Delaware Forest Service encourages the developer to use native trees and shrubs to buffer the property from the adjacent land-use activities near this site. A properly designed forested buffer can create wildlife habitat corridors and improve air quality to the area by removing six to eight tons of carbon dioxide annually and will clean our rivers and creeks of storm-water run-off pollutants. To learn more about acceptable native trees and how to avoid plants considered invasive to our local landscapes, please contact the Delaware Department of Agriculture Plant Industry Section at (302) 698-4500.

Tree Mitigation

The Delaware Forest Service encourages the developer to implement a tree mitigation program to replace trees at a 1:1 ratio within the site and throughout the community. This will help to meet the community's forestry goals and objectives and reduce the environmental impacts to the surrounding natural resources. To learn more, please contact our offices at (302) 349-5754.

Public Service Commission - Contact: Andrea Maucher 739-4247

Any expansion of natural gas or installation of a closed propane system must fall within Pipeline Safety guidelines. Contact: Malak Michael at (302) 739-4247.

Delaware State Housing Authority – Contact Karen Horton 739-4263

This proposal is a site plan review for 217 residential units on 130.4 acres located on the north side of Roesville Road near intersection with Carpenters Bridge Road. According

to the *State Strategies Map*, the proposal is located in an Investment Level 3 area and inside the growth zone. As a general planning practice, DSHA encourages residential development inside growth zones and where residents will have proximity to services, markets, and employment opportunities. Furthermore, the proposal targets units for first time homebuyers. According to the most recent real estate data collected by DSHA, the average home price in Kent County is $191,500. However, families earning respectively 80%-100% of Kent County's median income only qualify for mortgages of $138,205-$176,741, thus creating an affordability gap of $51,295-$12,759. The provision of units within reach of families earning at least 80%-100% of Kent County's median income will ensure housing that is affordable for first time homebuyers.

Department of Education – Contact: John Marinucci 739-4658

This proposed development is within the Lake Forest School District boundaries. DOE offers the following comments on behalf of the Lake Forest School District.

Using the DOE standard formula, this development will generate an estimated 109 students.

1. DOE records indicate that the Lake Forest School Districts' *elementary schools **are** at or beyond 100% of current capacity* based on September 30, 2005 elementary enrollment.
2. DOE records indicate that the Lake Forest School Districts' *secondary schools are **very close** to 100% of current capacity* based on September 30, 2005 secondary enrollment.
3. The Superintendent of Lake Forest School District has communicated to the DOE the district's lack of capacity given the number of planned and recorded residential sub divisions within district boundaries.
4. This development will create additional elementary and secondary student population growth which will further compound the existing shortage of space.
5. The developer is strongly encouraged to contact the Lake Forest School District Administration to address the issue of school over-crowding that this development will exacerbate.
6. DOE requests developer work with the Lake Forest School District transportation department to establish developer supplied bus stop shelter ROW and shelter structures, interspersed throughout the development as determined and recommended by the local school district.

Following receipt of this letter and upon filing of an application with the local jurisdiction, the applicant shall provide to the local jurisdiction and the Office of State Planning Coordination a written response to comments received as a result of

the pre-application process, noting whether comments were incorporated into the project design or not and the reason therefore.

Thank you for the opportunity to review this project. If you have any questions, please contact me at 302-739-3090.

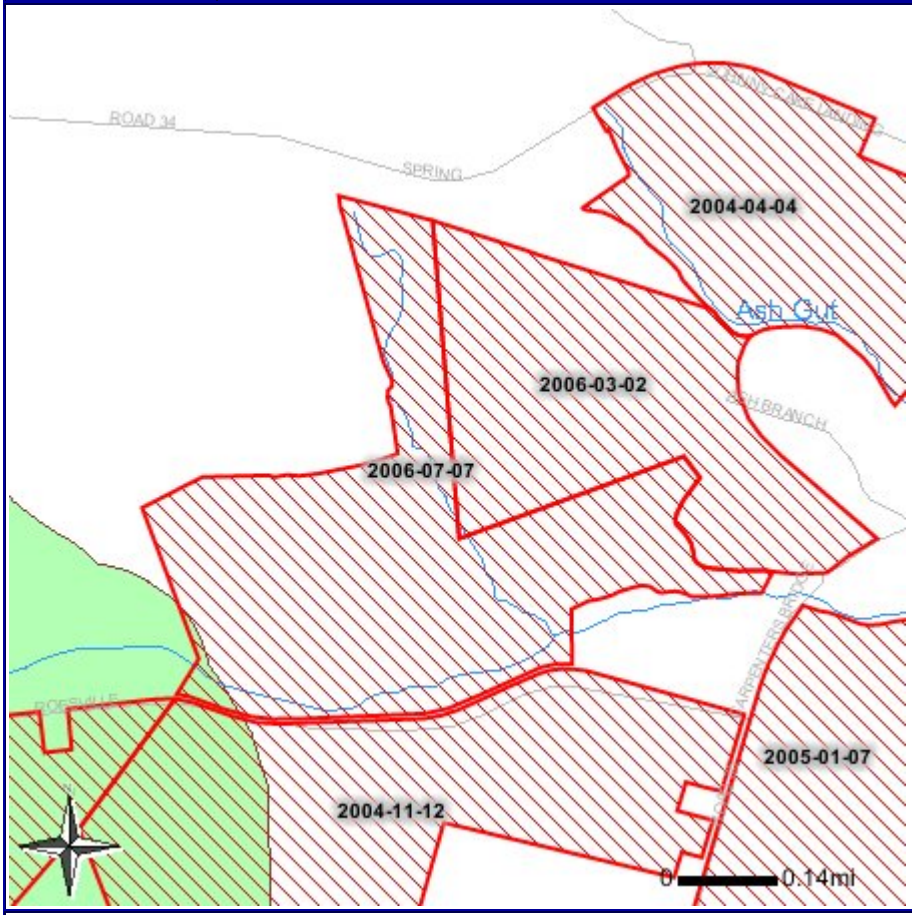
Sincerely,

Constance C. Holland, AICP
Director

CC: Kent County

Dickinson Grove

2006-07-07



PLUS Projects
NHDFlowLine
All Roads
Excellent Recharge Areas

This map was produced by the Delaware
Department of Natural Resources and Environmental Control.